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| 10 018,174 | 03 12 2002 | Inge Johansen | 2001-1826A | 8526 |

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EXAMINER

KERNS, KEVIN P

| ART UNIT | PAPER NUMBER |
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1725

11

DATE MAILED: 04 17 2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/018,174

Applicant(s)

JOHANSEN ET AL.

Examiner

Kevin P. Kerns

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☒ Claim(s) 1-10 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,5
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the relationships between channels (10,11), permeable material (12,13), annuli 20, and plugs 21 (in view of Figures 2a and 2b) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. The structural relationships are unclear since there is only one structure (10,11) shown in Figure 2b and not the other (12,13), which appears to be connected/adjacent in Figure 2a. In addition, the annuli 20 and plugs 21 are shown in Figure 2b and not in Figure 2a, such that a positive structural relationship between these structures cannot clearly be determined.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: "24" in Figure 2(a); and "A-A" in Figures 2(a) and 2(b). A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

4. The disclosure is objected to because of the following informalities: on page 2, 11th line, reference to claims 2-5 should be deleted from the specification, as claim numbers can change throughout prosecution of the application. On page 3, last line, "24" (see paragraph 2 above) has not been given a structural name. Throughout the specification, all instances of the terms "aluminium" and "characterised" should be changed to "aluminum" and "characterized", respectively. Appropriate correction is required.

5. The use of the trademark "Plexiglas" has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology. Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Objections

6. Claims 1-10 are objected to because of the following informalities: in (all) claims 1-10, "characterised" should be changed to "characterized". In claim 1, 1st line, "aluminium" should be changed to "aluminum". In claim 1, 6th line, it appears as though "nozzles" should be changed to "nozzle", as "at least one" also precedes "slit" in the same line of this claim. Claim 1 also includes narrower recitations following the terms "in particular" and "preferably", such that the broader features (e.g. all metals and all mold cavity shapes, which are disclosed prior to the stated terms above, respectively)

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will be examined. In claim 1, 8th line, a comma should be added after "oil". In claim 1, 11th line, it appears as though "is" should be changed to "are" after (the plural term) "annuli (20)". Throughout claim 1, the terms "gas/oil" and "oil/gas" are used, but only one of these terms should be selected for further clarity. In claim 2, 2nd line, "(10,11)" should be changed to "(12,13)". Claim 2 also includes the broad recitation "or similar" following "gasket (18)", such that the broader features (e.g. all materials similar to a gasket or other separating means) will be examined. In claim 3, 3rd line, "and upper and lower sector" should be changed to "an upper sector and a lower sector" for further clarity. In claims 4, 6, and 7, the limitations "(through 12)" and "(through 11)", if correct, should be changed to denote corresponding specific structures within these claims. In claims 5 and 8-10, 2nd line of all claims, "drain out" should be changed to either "remove" or "relieve", as "drain out" commonly refers to liquids rather than gases. Appropriate correction is required.

7. Claims 4, 6, and 7 are objected to because they include reference characters which are not enclosed within parentheses (plate 19 in these claims).

Reference characters corresponding to elements recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. See MPEP § 608.01(m).

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Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/009,690. Although the conflicting claims are not identical, they are not patentably distinct from each other because each of the claims shares identical elements, with the exception of the specific disclosure of increased/decreased cooling in 10/009,690. However, claim 1 of the present application teaches that flow of oil/gas (coolant) is able to "differentiate" around the circumference of the mold cavity, for the purpose of more uniform cooling around the different regions of the mold.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to the last 6 lines of claim 1, it is unclear what the relationships are between channels (10,11), permeable material (12,13), annuli 20, and plugs 21 (in view of Figures 2a and 2b), since there is only one structure (10,11) shown in Figure 2b and not the other (12,13), which appears to be connected/adjacent in Figure 2a. In addition, the annuli 20 and plugs 21 are shown in Figure 2b and not in Figure 2a, such that a positive structural relationship between these structures cannot clearly be determined. Also see paragraph 1 above (drawing objection).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. Claims 1-10 insofar as definite are rejected under 35 U.S.C. 103(a) as being unpatentable over Foye (US 3,556,197) in view of either Kittilsen et al. (US 5,915,455) or Steen et al. (US 5,678,623).

Foye discloses an apparatus (horizontal continuous casting of round billets 13) for lubricating a molten metal mold, in which the apparatus includes a reservoir 10 of molten metal, mold assembly 8, mold section 12, plate element 11, annular gasket 20, a lubricating device 23 having upper and lower (sectors) chambers 18,27 (of the annuli) and adjustable valves 17,26 to control the circumferential supply of oil around the mold in the region of the plate element 11, and secondary water sprays (abstract; column 1, lines 12-59; column 2, lines 36-71; column 3, lines 1-75; column 4, lines 1-14 and 34-

41; and Figures 1-16). In another embodiment, annular gasket 35 has six radial slots 36 (channels) in which the flow is controlled by valves (column 4, lines 72-75; column 5, lines 1-19 and 56-58; and Figures 6-8). One of ordinary skill in the art would have recognized that the plugs or similar restrictions, as the applicants' claim, would be analogous to the plurality of valves taught by Foye, as in each instance the supply of oil would be "differentiated" around the circumference of the mold cavity. Foye does not specifically disclose the use of a supply of gas in the horizontal continuous casting process.

However, Kittilsen et al. disclose an apparatus for horizontal casting of light metals, in which the apparatus includes a supply of molten metal M, a mold 10 with multiple housings and an oil ring 19 with oil supply channels 20 to lubricate the mold, a transition ring of insulating porous refractory material 21, gas supply channels 22, and separate primary and secondary cooling water circuits (11,12), such that the gas supply channels 22 are advantageous for supplying a protective gas to provide for a smooth ingot without surface discoloration (abstract; column 1, lines 55-67; column 2, lines 1-44; column 3, lines 7-67; column 4, lines 1-67; column 5, lines 1-3; and Figures 1 and 2).

In addition, Steen et al. disclose continuous casting equipment of aluminum ingots or billets, in which the equipment includes a supply of metal 11, casting mold 1 having a collar made of aluminum or steel, and two permeable, separate rings/wall elements (12,13) to supply oil and gas, respectively, such that the elements for the supply of the oil and gas may be optimized independently to sustain the best conditions

when performing casting operations, resulting in a layer of oil and/or gas between the metal and the mold wall to prevent their direct contact (abstract; column 2, lines 30-45; column 3, lines 25-42 and 51-67; column 4, lines 1-32; and Figures 1 and 2).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the horizontal continuous casting apparatus of Foye, by adding the gas supply of either Kittilsen et al. or Steen et al., in order to supply a protective gas to provide for a smooth ingot without surface discoloration (Kittilsen et al.; column 3, lines 30-38), and to sustain the best conditions when performing casting operations, resulting in a layer of oil and/or gas between the metal and the mold wall to prevent their direct contact (Steen et al.; column 1, lines 11-16; and column 2, lines 39-43).

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Pryor et al., Sokolowski, Nagai et al. (2), and Schneider et al. references are also cited to show related art.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin P. Kerns whose telephone number is (703) 305-3472. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (703) 308-3318. The fax phone numbers for

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the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-6078 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

kpk
April 14, 2003

KUANG Y. LIN
EXAMINER
GROUP 320

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